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Research Article

FINANCIAL PERFORMANCE, ENVIRONMENTAL DISCLOSURE, AND FIRM VALUE: EXPLORING THE DIVERGENT IMPACTS AND THE MODERATING ROLE OF ECONOMIC GROWTH

Dedi Kusmayadi[1,*], Irman Firmansyah[1], Wildan Dwi Dermawan[1]

[1] Siliwangi University, Jawa Barat, Indonesia
Corresponding author email: dedikusmayadi@unsil.ac.id

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Abstract
This research aims to explore the financial performance of energy companies and environmental disclosure practices in increasing company value. In addition, to date, there has been no research that investigates the role of economic growth in the relationship between environmental disclosure and corporate performance on corporate value in energy companies, even though economic growth greatly influences business conditions. This is the urgency of this research. Therefore, this research fills the gap by including gross domestic product as an indicator of economic growth as a moderating variable. The method used is moderated regression analysis with the research sample, namely energy companies in Indonesia that made environmental disclosures from 2017 to 2022. The results found that financial performance (profitability, liquidity, activity and solvability) significantly influenced company value, but environmental disclosure was not successful. shows influence. In addition, the moderation analysis test found that GDP moderated the relationship between environmental disclosure and company value, but did not moderate the relationship between financial performance and company value. This model implies that there is a role for the macroeconomic situation that triggers management to disclose its environmental activities in supporting increasing company value in the energy sector.

Keywords Economic Growth, Energy Companies, Environmental Disclosure, Firm Value, Performance.

INTRODUCTION

Corporate value is an important dimension that cannot be ignored in the context of energy companies (Aljaaidi & Bagais, 2020; Constantinescu, 2021; Delegkos et al., 2022). This value reflects the reputation, trust and social responsibility inherent in the company in carrying out its activities (Daromes et al., 2022). For energy companies, having a high company value indicates the ability to foster positive relationships with various related parties, including the government, community and investors. Furthermore, high corporate value also strengthens customers' trust (Jao et al., 2020) in the products and services provided by energy companies. By prioritizing these enterprise values, energy

companies can more easily access the resources, capital and support critical for long-term growth and sustainability. More than just a numerical entity documented in financial reports, corporate value for energy companies includes a solid foundation for building a sustainable future and providing a positive impact for all stakeholders involved (Astuti et al., 2022).

From a shareholder perspective, corporate value describes the economic value provided by a company. Company value is very important because it provides an idea of how much the company is valued by the market, which can influence investment decisions and business strategy (Aisyah & Riswanti, 2020; Risal & Endang, 2017). The value of energy companies is strongly influenced by commodity prices such as oil, natural gas and electricity (Ferreira et al., 2022; Min, 2022). Changes in the prices of these commodities can significantly affect a company's profits and revenues and therefore influence the market's assessment of the Company's value. In fact, management aspects and company strategy in managing operations also play an important role in determining the value of an energy company. Strategic decisions such as energy portfolio diversification, technological innovation, and operational efficiency can increase company profitability and competitiveness, which in turn increases company value (Berawi et al., 2020; Sazonov, 2020; Hanoum et al., 2024; Muis et al., 2024). Therefore, effective management and a clear long-term vision are crucial components in energy companies' efforts to maintain and increase their value in the market.

Research related to company value has significant relevance in the context of energy sector development. In anticipating changes in the dynamics of the global energy market and the need to transition towards clean energy, a comprehensive understanding of company value is critical. Financial performance and disclosure of environmental aspects are important variables that are significant in influencing company value, especially in the context of business entities operating in the energy sector. Financial performance reflects a company's ability to manage assets (Al-Shattarat, 2022; Hasibuan et al., 2024; Miharja et al 2024) and obligations to create value for its shareholders. Solid financial performance, reflected by consistent revenue growth, high levels of profitability, and prudent debt management, can improve the market's perception of the company, and thereby, strengthen the company's valuation. Investors and other related parties tend to give a more positive assessment of companies that show stability and profitability in their financial performance.

How well a company manages and optimizes its resources to achieve goals such as profitability, liquidity, activity, and solvency is known as financial performance. Financial performance is an important aspect in achieving company success. Good financial performance will provide benefits for the company, investors and stakeholders. However, if the company experiences poor financial performance, it will have a negative impact on the company and reduce stakeholder trust. Good company financial performance will also have a good impact on company value (Farawansyah et al., 2024).

Financial report analysis is usually needed to assess financial performance (Khetal & Sardar, 2022) because each component of financial performance provides an overview of the condition and operational efficiency of the business, which directly influences investor perceptions and market assessments of business value.

Profitability is the main indicator of a company's ability to generate profits from the assets and equity it owns. In the energy industry, high profitability indicates that a company can manage its costs effectively and utilize its assets to generate stable revenues, despite commodity price volatility and regulatory changes. Meanwhile, company liquidity shows the company's ability to meet its short-term obligations. Good liquidity is critical because companies often face significant revenue fluctuations due to changes in energy prices. Activity ratios, such as total asset turnover and inventory turnover, can also be used to measure financial performance. This ratio shows how efficiently a company uses its assets to generate income. Meanwhile, solvency, such as the debt-to-equity ratio and interest coverage ratio, reflects the company's ability to manage its debt and meet interest obligations. A healthy capital structure, with controlled debt levels, shows that the company has lower financial risk and is more able to survive in the long term.

Based on the collection of previous studies, quite a few research results show that financial performance (profitability, liquidity, activity and solvency ratios) is an important factor in increasing company value (Hung et al., 2018; Islamiyati & Faruqi, 2023; Kristi & Yanto, 2020; Pujiati & Averina, 2022). Furthermore, disclosing information on environmental aspects has also become a main focus due to increasing awareness of environmental and sustainability issues (Adekunle, 2018; Aung et al., 2024; Farel et al., 2023; Ledesma-Munive, 2024; Malakar, 2021; Susbiyanto et al., 2024). Companies in the

energy sector often have significant environmental impacts (Zakharov et al., 2022), both through day-to-day operations and the broader impacts of energy production activities. Therefore, transparency in disclosing environmental practices, efforts to mitigate environmental impacts, and commitment to sustainability are crucial for stakeholders (Suta et al., 2021). Trusted disclosures in this case can increase public trust, reduce reputation risks, and strengthen relationships with regulators and investors who increasingly consider environmental factors in making investment decisions (Asyari & Dianwicaksih Arieftiara, 2022; Indriastuti et al., 2022).

In an era that is increasingly aware of the importance of sustainability and environmental responsibility, the disclosure of environmentally related information by energy companies is becoming increasingly important (Gatimbu et al., 2017; Monteiro & Aibar-Guzmán, 2010). When energy companies transparently disclose their environmental practices, including efforts to reduce emissions, investments in renewable energy, and compliance with environmental regulations (Dechezleprêtre & Sato, 2017), this can improve stakeholder trust and company image. Companies that are considered environmentally responsible are often valued more highly by the market and society, which can be reflected in an increase in their corporate value. However, it is also important to remember that the impact of environmental disclosure on firm value may vary depending on the industry context, company size, and market characteristics. In some cases, especially when strict environmental policies are implemented or when consumers and investors pay increasing attention to environmental issues, environmental disclosure can be one of the key factors that increases company value in the long term.

Previous studies have extensively explored financial performance variables and environmental disclosure as key factors in assessing firm value, especially in the context of energy companies (Aprilia et al., 2024; Cheng & Tzeng, 2011; Fuadah et al., 2018; Gerged et al., 2021; Pangestuti et al., 2022). However, the latest developments in science emphasize the need for a more in-depth study of the existence of economic growth variables as moderating factors in the dynamics of the relationship between financial performance, environmental disclosure and company value, especially in the energy sector.

Economic growth plays a key role in determining the performance of energy companies. In periods of strong economic growth, energy demand tends to increase as overall economic activity expands, creating opportunities for energy companies to increase their sales and earnings. Usually, economic growth is often measured through Gross Domestic Product (GDP) (Moral-Benito, 2012). GDP can moderate the relationship between financial performance and energy firm value through several mechanisms. As the economy grows, energy demand also tends to increase, which can improve the financial performance (Ismanto et al., 2022; Rowley & Oh, 2020) of energy companies due to increased sales and revenues. On the other hand, stable economic growth also creates a more conducive environment for companies to better manage their financial risks, resulting in better overall financial performance and ultimately increasing company value. Apart from that, GDP can also act as a moderator in the relationship between the level of environmental disclosure and firm value. GDP is a macroeconomic indicator that reflects the economic condition of a country. Several studies have highlighted that in countries with high GDP, the relationship between energy company information disclosure and firm value is stronger.

Although many previous studies have explored the influence of financial performance and environmental disclosure on firm value, studies that integrate economic growth variables as a moderator in this relationship are still very limited, especially in the context of energy companies. Most previous studies have focused on internal factors of the company such as operational performance or governance, but not many have looked at how macroeconomic factors, such as economic growth, can affect this relationship (Christiansen et al., 2009; Siyakiya, 2017). This gap indicates the need to understand the role of economic growth as a potential external factor in moderating the relationship between financial performance, environmental disclosure, and firm value.

The energy industry in Indonesia has a crucial role in supporting economic growth, but also faces significant challenges related to sustainability and environmental impacts. In this context, research that investigates the relationship between financial performance, environmental disclosure, and firm value, taking into account the moderating role of economic growth, is essential to provide insight into how energy companies can increase firm value amidst changing economic dynamics and regulations. This research is also relevant to answer the increasing demands for transparency and sustainability in the energy sector.

This study will integrate analytical approaches to explore how financial performance and environmental disclosure variables affect firm value, by testing the moderation of economic growth. Panel data covering energy companies in Indonesia will be used to analyze this relationship, and a robust statistical approach will be applied to ensure the validity of the results. This study will also identify the specific role of economic growth in strengthening or weakening the relationship between these variables.

This research is expected to provide a significant contribution to practitioners and decision-makers by providing a deeper understanding of optimal strategies for managing company value amidst ever-changing economic dynamics. Therefore, studies that integrate economic growth variables as moderating factors are considered a crucial step in developing an understanding of the factors that influence company value in the energy sector. From an academic perspective, this research is significant because it can provide a more in-depth analysis of the factors that influence company value in the dynamic energy market in Indonesia, especially the use of economic growth variables which fill research gaps and can find updates for developments. Science. Through this study, academics have the opportunity to develop a new theoretical and conceptual framework related to corporate value that suits the unique characteristics of the Indonesian energy industry. From a practical perspective, this research is of significant importance because it can guide practitioners in making more informed strategic decisions. Considering that the energy industry is highly influenced by external variables such as commodity price fluctuations and government regulations, a better understanding of company value can help energy companies to design business strategies that are more adaptive and responsive to environmental changes.

This article is structured as follows: The second section explains the literature review. The third section describes the research method, including the measurement of variables, data sources, and analysis techniques used. The fourth section presents the research results and discussion. Finally, the fifth section concludes the study by highlighting the implications.

RESEARCH METHOD

This research is a quantitative research with a panel data approach that analyzes the effect of financial performance and environmental disclosure on company value, as well as moderation of economic growth. The population includes 66 energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2013–2022. The sample was selected using purposive sampling with the criteria of companies that consistently publish complete annual reports during the period. The research data is in the form of secondary data obtained from the company's annual report, the IDX website, and other trusted platforms. With a representative sample size and purposive sampling technique, this study can provide valid and relevant results even though the number of samples is limited.

This research uses 3 types of variables, namely:

Dependent Variable

The dependent variable in this study is the company value through the measurement of Tobin's Q which is calculated using the following formula:

$$\text{Tobin's Q: } = \frac{(Total\ Market\ Value + Total\ Book\ Value\ of\ Liabilities)}{Total\ Book\ Value\ of\ Assets}$$

The data was obtained from the company's financial reports.

Independent Variables

a. Financial performance

Profitability, using *Return On Aset* (ROA):

$$\textit{Return on Assets (ROA)} = \frac{Earning\ After\ Tax}{Total\ Assets}$$

Liquidity, using current ratio (CR):

$$\textit{Current Ratio (CR)} = \frac{Current\ Assets}{Current\ Liability}$$

Solvability, using *Debt to Equity Ratio (DER)*:

Debt to Equity Ratio (DER) = $\frac{Total\ of\ Liability}{Total\ of\ Equity}$

Activity, using total asset turnover (TATO):

Total Asset Turnover (TATO) = $\frac{Net\ Sales}{Total\ of\ Assets}$

The four ratios above will be reduced first using PCA which will be explained in the next section. Data is taken from the company's financial reports.

b. Environmental Disclosure, measured by total environmental disclosure divided by total disclosure according to Global Reporting Initiative (GRI).

Moderated Variabel

This research uses economic growth as a moderating variable which is measured by Gross Domestic Product (GDP). This data is taken from the official report of the Central Bureau of Statistics (BPS) of Indonesia. This variable is measured as the annual percentage change of Gross Domestic Product based on constant prices.

The data processing method used in this research is panel data which is a combination of time series and cross section data which is estimated to be unbalanced. The analysis used consists of Principal Component Analysis (PCA) and moderated regression analysis. To address the issue of unbalanced panel data and reduce potential bias without using robust tests or specific regression methods, several steps have been taken. First, the sample was carefully selected by ensuring that relevant energy companies consistently reported financial data throughout the study period, so that the risk of missing data can be minimized. Second, additional analysis was conducted to compare the characteristics of companies with complete and incomplete data, to ensure that there are no significant differences that could affect the results of the study. This approach is designed to increase the validity of the results despite the limitations of the panel data used.

To transform a set of data that may be interconnected into unrelated parts, principal component analysis (PCA) uses orthogonal transformation techniques. PCA aims to make the observed variables simpler by reducing their dimensions. This is achieved by changing the original independent variable to a new variable that does not correlate at all, also known as the principal component. Components become new independent variables after several components are obtained through PCA which are free from multicollinearity. In this case, variables such as ROA, CR, DER, and TATO will be analyzed using PCA. By using the Principal Component Analysis (PCA) method, the four financial ratios will be given new independent variables that are not correlated with each other, independent of each other, and fewer than the original variables, but can absorb most of the information from the original variables or can provide a contribution to the total variance of these variables. After the PCA analysis is completed, the three financial ratios will be considered as dependent variables.

PCA analysis is used to reduce the dimensionality of the data to handle the complexity of the independent variables and reduce the potential for multicollinearity among the variables. The selection of the number of principal components is based on eigenvalues greater than one and the cumulative contribution to the total variance, taking into account the relevance of the new component in the context of the study. Interpretation of the components is done by analyzing the variable loadings on each component, so that only information that is significant to the relationship of the variables is retained. This approach not only simplifies the analysis but also ensures that the most relevant data variability remains optimally represented.

Suppose $x = [x_1, x_2, x_3, \ldots, x_p]$ is a vector of the original variables observed with the covariance matrix $\sum(\sigma_{ij})$, then the first principal component denoted by Y_1 is defined as :

$$Y_1 = \sum a_{ij}X_j = a_1^T X$$

where:

$$Y_1 = a_{11}X_1 + a_{12}X_2 + a_{13}X_3 + \cdots + a_{1p}X_p$$

$$\vdots$$

$$Y_p = a_{p1}X_1 + a_{p2}X_2 + a_{p3}X_3 + \cdots + a_{pp}X_p = a_p^T X$$

with: Y_p = random variable from the original variable to the new variable, Y_p = original random variable, X = original random variable matrix of the form:

$$\begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_p \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1p} \\ a_{21} & a_{22} & \cdots & a_{2p} \\ \vdots & \vdots & \ddots & \vdots \\ a_{p1} & a_{p2} & \cdots & a_{pp} \end{bmatrix} \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_p \end{bmatrix}$$

Which maximized variety Y_1, namely $\sum a_1$, with obstacles $a_1^T a_1 = 1$. If the covariance matrix of the vector x is $\sum$, then variant Y1 is formulated as:

$$\text{var}\,(Y_1) = a_1^T \sum a_1$$

The transformation problem is how to select the coefficient of the linear combination so that:

$$\text{var}\,(Y_1) > \text{var}\,(Y_2) > \cdots > \text{var}\,(Y_p)$$

The analysis results the with Lagrange function yielded $a_1, a_2, \ldots, a_p$, as an eigenvector corresponding to the eigenvalue $\lambda_1, \lambda_2, \ldots, \lambda_p$, from matrix covariance $\sum$. The general form of the Lagrange equation is:

$$L(x) = f(x) - \lambda[g(x) - c]$$

where:
f(x) = objective function
g(x) = constraint function
c = constant

This analysis is used to test financial performance and environmental disclosure variables in determining company value, with economic growth as a moderating variable. For this need, the basic model can be formulated as follows:

$$FV = a + b_1\,Fin.Perf_{it} + b_2\,Env.Disc_{it} + b_3\,e \quad \ldots\ldots(1)$$

$$FV = a + b_1\,Fin.Perf_{it} + b_2\,Env.Disc_{it} + b_3\,Eco.Growth_{it} + e \quad \ldots\ldots(2)$$

$$FV = a + b_1\,Fin.Perf_{it} + b_2\,Env.Disc_{it} + b_3\,Eco.Growth_{it} + b_4\,(Fin.Perf * Eco.Growth)_{it} + b_4\,(Env.Disc*Eco.Growth)_{it} + e \quad \ldots\ldots(3)$$

where: FV=Firm Value, Fin.Perf= financial performance as a result of PCA reduction, Env.Disc= environmental disclosure following GRI, Eco.Growth=economic growth.

RESULTS AND DISCUSSION

Descriptive Analysis

Table 1 shows a summary of the descriptive analysis of each variable consisting of minimum, maximum, average and standard deviation. From the table, it is known that there are two variables whose smallest value is the minimum, namely the ROA ratio with a value of -0.57% and DER with a value of -7.17%. Both also have standard deviation values that are greater than the average, thus showing values with quite diverse variations.

Table 1. Descriptive Analysis

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-0.57	0.62	0.0722	0.14119
CR	0.10	7.42	1.8705	1.16290
TATO	0.00	3.10	0.7552	0.53108
DER	-7.17	24.85	1.3206	2.44777
ENV.disc	0.00	1.00	0.4373	0.24277
GDP (Trillion Rp)	3,900.00	10425.00	6324.5134	2365.64185
TobinsQ	0.28	4.85	1.2047	0.66373

Company Financial Performance Based on PCA Analysis

Financial performance variables are measured by several financial ratios, namely profitability (ROA), liquidity (Current Ratio), Activity (Total Asset Turnover), and Solvency (Debt to Equity Ratio). These four ratios were then reduced to one variable using Principal Component Analysis (PCA). Next, the new variable is called Perf (performance). To determine whether or not factor analysis is appropriate to use in reducing this ratio, the Kaiser-Meyer-Olkin (KMO) test and Barlett's T-Test were carried out. The results of the analysis are shown in table 2 that the KMO value is 0.510 which is greater than 0.5 and Barlett's test has a significance value below 0.05, so it is concluded that the data can be used for factor analysis.

Table 2. Kaiser-Meyer-Olkin analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.510
Bartlett's Test of Sphericity	Approx. Chi-Square	111.319
	Df	6
	Sig.	0.000

Next, the Component Matrix output is presented to see factors that can be used to measure financial performance based on the highest level of correlation. Table 3 shows that factor 1 has the highest value compared to factor 2 of all the variables used so that the ROA, CR, TATO and DER variables can be reduced to one variable. In this research, the new variable is named the performance variable (perf).

Table 3. Component Matrix

	Component	
	1	2
ROA	0.884	0.191
CR	0.452	-0.593
TATO	0.814	0.400
DER	-0.313	0.724

Correlation Matrix

This analysis is intended to see the directional relationship between each variable used, namely financial performance, environmental disclosure, GDP, and TobinsQ. The analysis uses Pearson Correlation. The results can be seen in table 4.

Table 4. Correlation Analysis

		Fin.Perf.	Env.disc	GDP	TobinsQ
Fin.Perf.	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	187			
Env.Disc	Pearson Correlation	.141	1		
	Sig. (2-tailed)	.054			
	N	187	187		
GDP	Pearson Correlation	-.111	-.134	1	
	Sig. (2-tailed)	.132	.067		
	N	187	187	187	
TobinsQ	Pearson Correlation	.495**	.057	-.038	1
	Sig. (2-tailed)	.000	.435	.602	
	N	187	187	187	187

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 4 shows the relationship between variables. The significance value is also shown to see whether there is a close relationship or not. Apart from that, this analysis also shows the relationship

between the independent variable and the dependent variable to help explain the influence that will be analyzed.

Regression Analysis

In this section, the influence of financial performance and environmental disclosure in increasing company value will be analyzed. Several models are used as test stages for moderation regression analysis.

Table 5. Model 1 Regression Analysis Output

Number of Obs. = 187
F (5, 184) = 29.93
Prob > F = 0.000
R-Squared = 0.2455
Adj R-Squared = 0.2373
Root MSE = 0.57965

Eff	Coefficient	Std err	t	p>t	(95% conf. interval)	
Fin.Perf.	3.299462	0.429321	7.69	0.000**	.2452438	.4146486
Env.disc	-.0347491	.1768398	-0.20	0.844	-.3836435	.3141453
cons	1.219849	.0881915	13.83	0.000	1.045853	1.393846

Note: model 1 without including the GDP variable, aims to see the influence of financial performance and environmental disclosure; *significant at the 5% level, ** significant at the 1% level

Table 6. Model 2 Regression Analysis Output

Number of Obs. = 187
F (5, 181) = 19.87
Prob > F = 0.000
R-Squared = 0.2457
Adj R-Squared = 0.2334
Root MSE = 0.58115

Eff	Coefficient	Std err	t	p>t	(95% conf. interval)	
Fin.Perf.	.3308968	.0432316	7.65	0.000**	.2456003	.4161932
Env.disc	-.0296699	.1786029	-0.17	0.868	-.3820555	.3227157
GDP	.0284111	.1206599	0.24	0.814	-.2096523	.2664746
cons	.1857352	4.392691	0.04	0.966	-8.481097	8.852568

Note: model 2, by including the GDP variable, aims to see changes in the first model after the influence of GDP; *significant at the 5% level, ** significant at the 1% level

Table 7. Model 3 Regression Analysis Output

Number of Obs. = 187
F (5, 181) = 14.20
Prob > F = 0.000
R-Squared = 0.2817
Adj R-Squared = 0.2619
Root MSE = 0.57023

Eff	Coefficient	Std err	t	p>t	(95% conf. interval)	
Fin.Perf.	3.238506	5.494864	0.59	0.556	-7.603724	14.08074
Env.disc	-56.35187	18.90842	-2.98	0.003**	-93.66115	-19.04259
GDP	-.616435	.2447374	-2.52	0.013*	-1.09934	-.1335297
Fin.Perf._GDP	-.0801906	.151671	-0.53	0.598	-.3794613	.21908
Env.Disc_GDP	1.552595	.521219	2.98	0.003**	.5241476	2.581041
cons	23.5915	8.88952	2.65	0.009	6.051062	41.13195

Note: model 3 includes an interaction variable, namely a new variable resulting from multiplying GDP with financial performance and GDP with environmental disclosure; *significant at the 5% level, ** significant at the 1% level

The Effect of Financial Performance and Environmental Disclosure

Based on the analysis in the first model, financial performance can prove that there is a positive and significant influence on company value. This is different from environmental disclosure which has no influence. Then in the second model, GDP as a moderating variable is tested to see its independent influence. However, the results did not show any effect. These findings indicate that financial performance is an important factor that influences company value, especially in energy sector companies in Indonesia. A company that has strong financial performance tends to have a higher company value (Hung et al., 2018; Kristi & Yanto, 2020; Lestari & Setiany, 2023). This is because strong financial performance reflects the company's ability to generate consistent revenues and profits from its operations. In the energy sector, this could mean companies can optimize selling energy resources efficiently and profitably.

In addition, good financial performance also reflects effective risk management and appropriate financial policies. Energy companies often operate in highly risky environments (Ivashchuk et al., 2019; Sobik, 2022), including fluctuating commodity prices and changing regulations (Kusmayadi et al., 2024). Companies that can manage risk well and have a balanced financial structure will be more appreciated by investors, which in turn will increase the value of the company. Strong financial performance also allows the company to invest in profitable projects to increase long-term growth and profitability. In Indonesia, where there is great potential for the development of new energy infrastructure and diversification of energy resources, companies that can make these investments well will gain significant competitive advantages, which will ultimately be reflected in the value of their companies.

From an investor's perspective, strong financial performance can also increase shareholder and creditor confidence in the Company (Al-Ibbini & Shaban, 2021). This can reduce a company's cost of capital and increase access to cheaper sources of financing, such as bank loans or bond issuance. Thus, energy companies that have good financial performance tend to have more efficient capital structures, which will increase their company value On the other hand, environmental disclosure has different results. Statistics show that environmental disclosure is unable to show any influence on company value. Even though environmental disclosure has become an important focus for many companies around the world, including companies in the energy sector. Although it is important to understand the environmental impact of business activities, environmental disclosure does not always directly impact company value, especially in the energy sector in Indonesia. There are several reasons why environmental disclosure may not have a significant impact on firm value in this context.

In some countries, there are often differences between government policies and business practices regarding the environment. Although companies may make stringent environmental disclosures and commit to sustainable practices (Chiu et al., 2020; Hiemstra, 2021), government regulations and law enforcement on environmental issues may not yet be as stringent or consistently enforced. Therefore, environmental disclosure may not always have a significant impact on the perception of a company's value in the eyes of investors or the market.

In terms of regulation, although the Indonesian government has implemented policies such as Government Regulation No. 47 of 2012 concerning Social and Environmental Responsibility of Limited Liability Companies, its implementation and enforcement are often weak, so that environmental disclosure tends to be symbolic or merely fulfills administrative obligations without having a real impact on investor perceptions (Ji et al., 2024; Ribeiro et al., 2022). From a legal perspective, the legal system in Indonesia tends to be weak in following up on environmental violations and the disparity in law enforcement causes environmental disclosure to be viewed less as a strategic factor by investors (Alsahlawi et al., 2021). In addition, the corporate culture in Indonesia, which is often still oriented towards short-term profits and has minimal awareness of environmental sustainability, can cause environmental disclosure to be viewed as merely a formality that does not contribute directly to increasing the company's value (Rani & Pramudyastuti, 2021). Thus, although environmental disclosure has the potential to improve a company's reputation, the above factors explain why in Indonesia it has not become a top priority for investors or energy companies.

In this context, several studies have shown that environmental disclosure in emerging markets often faces unique challenges, such as weak regulation, low stakeholder pressure, and a greater focus on short-term profitability rather than sustainability (Chiu et al., 2020; Yue & Changjian, 2018). However, the results of these studies differ from those in developed countries, where environmental disclosure is often associated with increased firm value due to more mature investor perceptions of sustainability (Hiemstra, 2021).

This difference can be explained by the characteristics of emerging markets such as Indonesia, where environmental disclosure practices are still at an early stage of development. For example, Indriastuti et al. (2022) highlighted that in Indonesia, although environmental disclosure is starting to gain attention, its contribution to firm value is still limited due to the low level of environmental literacy among local investors. Therefore, the findings of this study are in line with the literature highlighting the ineffectiveness of environmental disclosure in increasing firm value in markets with immature environmental regulations and awareness. Given this context, this study strengthens the argument that to increase the relevance of environmental disclosure, stronger policy interventions, higher public awareness, and more comprehensive adoption of sustainability standards in emerging markets are needed.

Influence of Economic Growth Factors as a moderating variable

Testing the interaction of GDP with performance variables and environmental disclosure can be demonstrated with the help of the third model. The results showed that GDP succeeded in moderating the relationship between environmental disclosure and company value, but failed to prove that there was a moderating influence between financial performance and company value. High economic growth, as reflected in strong GDP, often reflects stability and greater market potential for Companies (Siddik, 2023). In the context of the energy sector in Indonesia, strong economic growth can indicate an increase in energy demand, both for domestic consumption and for infrastructure projects. Thus, energy companies that are active in good environmental disclosure can be more appreciated by the market and investors when positive economic growth occurs. This is because good environmental disclosure can be considered a proactive step in dealing with increasing energy demand, as well as increasing the reputation and trust of stakeholders in the Company (Indriastuti et al., 2022; Yue & Changjian, 2018). This finding is important information in the world of energy business in Indonesia because unstable economic conditions can determine the company's strategy in informing its environmental activities (Ahmad et al., 2024) to increase the company's value. Additionally, these findings highlight that, although financial performance has a significant influence on firm value in the energy sector, macroeconomic factors such as economic growth do not directly moderate this relationship. The implications of these findings are very important because they confirm that strong financial performance remains the main driver in determining company value (Khaira Afiani & Bernawati, 2019), especially in the energy sector.

Indonesia, as a developing country, has a high dependence on energy commodities, which makes the value of energy companies more sensitive to global commodity price fluctuations than domestic macroeconomic indicators such as GDP (Khaira Afiani & Bernawati, 2019). In addition, intensive government regulation in the energy sector, including fuel subsidies and price caps, often creates distorted market conditions, reducing the relevance of GDP as a factor influencing company value. These characteristics are exacerbated by domestic investors' focus on direct financial performance, such as revenue and profitability, rather than broader macroeconomic dynamics (Yue & Changjian, 2018). Therefore, although GDP reflects overall economic growth, this variable is not strong enough to moderate the relationship between financial performance and company value in the Indonesian energy sector.

This study integrates the variable of economic growth (GDP) as a moderation in the relationship between environmental disclosure and company value. This approach is rarely used in previous studies, especially in the energy sector in developing countries such as Indonesia, which has unique economic and regulatory characteristics. The finding that GDP is able to moderate the effect of environmental disclosure on firm value reveals the importance of macroeconomic context in corporate sustainability strategies. This paper provides implications for investors in assessing companies, especially in responding to environmental activity disclosures. In fact, strict regulatory factors are a strong reason for management to disclose this so that it cannot be used to predict the value of the company. Likewise, the government can consider the rules that are always strict on energy companies

regarding environmental activities. it is seen as only a necessity to be implemented and not based on awareness. In addition, energy companies in Indonesia can utilize environmental disclosure more strategically by improving the quality and credibility of their environmental reports, so that they not only meet regulatory compliance but also attract the attention of global investors who are increasingly concerned about sustainability. Companies need to integrate environmental initiatives with their core business strategies, for example through investment in renewable energy, carbon emission reduction, or energy efficiency, and transparently report the concrete results of these steps. In addition, companies can improve communication with stakeholders to demonstrate a real commitment to sustainability practices, thereby building a positive reputation that can ultimately increase the company's attractiveness in the global market.

This study has limitations in the use of unbalanced panel data, because it only includes energy companies that consistently report data over a certain period. In addition, the measurement of economic growth variables is only based on GDP, which may not fully reflect other macroeconomic dynamics. As a recommendation, further research can use more comprehensive measures of economic growth, such as inflation rates or foreign direct investment, to provide a broader picture. In addition, expanding the sample to other relevant sectors or to other countries can increase the generalizability of the findings. More sophisticated analysis methods, such as structural equation modeling (SEM), can also be used to test more complex relationships between variables

CONCLUSION

An important finding in this research is that there is an economic growth variable that is included in the model regarding the factors that determine company value. The first test shows that the financial performance resulting from the reduction of profitability, liquidity, activity and solvency shows a significant influence. This relates to the importance of energy company management to improve company performance because statistics prove that it can increase company value. Meanwhile, disclosure of environmental activities as part of the Company's social responsibility is unable to increase the value of the Company. Investors view environmental disclosure as a necessity because of regulations that require companies to carry out CSR activities. This is seen as not being management's motivation in efforts to increase the value of the energy company. This research also found new things after including the economic growth variable indicated by GDP in the regression model. It is known that economic growth can moderate the relationship between environmental disclosure and company value. This shows that unstable economic conditions can determine the Company's strategy in informing its environmental activities to increase the value of the Company. This is different from financial performance which has more power in determining the value of the company without having to look at macroeconomic conditions.

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AUTHOR CONTRIBUTIONS

Conceptualization, Dedi Kusmayadi and Irman Firmansyah; Methodology, Irman Firmansyah; Software, Irman Firmansyah; Validation, Dedi Kusmayadi and Wildan Dwi Dermawan; Formal Analysis, Wildan Dwi Dermawan; Investigation, Dedi Kusmayadi; Resources, Wildan Dwi Dermawan; Data Curation, Wildan Dwi Dermawan; Writing – Original Draft Preparation, Irman Firmansyah; Writing – Review & Editing, Wildan Dwi Dermawan; Visualization, Wildan Dwi Dermawan; Supervision, Dedi Kusmayadi; Project Administration, Irman Firmansyah; Funding Acquisition, Irman Firmansyah.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

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